ANALYSIS AND DESIGN OF A.N.N. BASED MODEL FOR THE ASSESSMENT OF HUMAN CAPACITY WITH RESPECT TO ORGANIZATIONAL PERFORMANCE

Synopsis

Submitted in partial fulfillment of the
Requirements for the award of the degree

Of

Doctor of Philosophy

In the subject of

Computer Science

Supervisor

Dr. Pranav Pandya

Hon. Chancellor

DSVV, Hardwar

Co-Supervisor

Prof. Ashutosh Bhatt

Birla Institute of Applied Sciences,

Bhimtal, Nainital

Researcher

Abhay Saxena

Department of Computer Science,

Dev Sanskriti Vishwavidyalaya, Gayatrikunj, shantikunj

Haridwar, 249411, Uttrakhand

Introduction

God had created the entire world with a crowned prince, the human being. It looks so that the entire world revolves around him. The journey of human being is full of threats and mysteries but with his efforts and zeal to do at any cost makes him winner. The winner with a broad shoulder, well maintained body shape, a perfect mind and the capacity and capability to pull out something from nothing makes him a real hero. Look around the world, the human beings differ in size, height and effectiveness. We do complain about the failure but the real picture starts from our efforts and zeal to work. (**Sharma, 1989**), rightly quoted that, "the failure means that the efforts are not being made whole heartedly". (**Maxwell,1975**), "God does not begin by asking our ability, only our availability, and if we prove our dependability, He will increase our capability."

This definite change in the human capacity makes all the difference between a winner and loser. The human capacity is the ability to perform actions. It may vary from person to person. In common words one can say as far as human capital is concerned, capacity is the sum of expertise and capability. The efforts to finish the job or to perform it with excellence, is the real difference. We often find people having the low capacity but the touch of expertise transform the simple work into wonderful master piece. The capacity to bear duties and to perform labor accordingly makes a person jewel among beads.

Human capacity definitions:

A simple definition of the term "capacity" can be:

"Capacity is simply the ways and means needed to do what has to be done. It is much broader than simply skills, people and plans. It includes commitment, resources and all that is brought to bear on a process to make it successful. ... Capacity, or the lack thereof, is reflected in the people, economy, environment, culture, attitude and appearance of the community." **(Frank, 1999)**

In my work the **"Capacity"** is understood as the ability of people, organisations and society as a whole to manage their affairs successfully. The definition is deliberately simple. *Capacity*, like sustainability, is an elusive concept. In the literature it is described both as a process and an outcome; as dynamic and multidimensional. For

example, in the health sector capacity is required at different levels and within different entities - the health system, organizations, health personnel, and individuals (such as clients). Capacity is said to develop in "stages of readiness" which indicate improvements or decline **(Goodman RM, Speers MA, McLeroy K, Fawcett S, Kegler M, Parker E, et al. 1998)**. In all cases, capacity exists for the purpose of performing a certain action or enabling performance. **(Goodman 1998)** describes capacity as "the ability to carry out stated objectives." In the software development sector, capacity is believed to play a prominent role as a best programmer or developer.

The relationship between capacity and performance in human affairs may be illustrated by analogy with the motor car. We are careful to maintain the car's engine, chassis, brakes, tyres, etc. – its capacity – because we value the safe and reliable transportation –the performance – that it provides.

Capacity development:

"Capacity development" is understood as the process whereby people, organisations and society as a whole unleash, strengthen, create, adapt and maintain capacity over time. The phrase capacity *development* is used advisedly in preference to the traditional capacity *building*.

Capacity building also referred to as capacity development is a conceptual approach to development that focuses on understanding the obstacles that inhibit people, governments, international organizations and non-governmental organizations from realizing their developmental goals while enhancing the abilities that will allow them to achieve measurable and sustainable results. The UNDP (United Nation Development Program) outlines that capacity building takes place on an individual level, an institutional level and the societal level. (OECD, 2006)

- **Individual level-** Capacity-building on an individual level requires the development of conditions that allow individual participants to build and enhance existing knowledge and skills. It will allow individuals to engage in the "process of learning and adapting to change".

- **Institutional level-** Capacity building on an institutional level should involve aiding pre-existing institutions in developing countries. It should not involve creating new institutions, rather modernizing existing institutions and supporting them in forming sound policies, organizational structures, and effective methods of management and revenue control.
- **Societal level-** Capacity building at the societal level should support the establishment of a more "interactive public administration that learns equally from its actions and from feedback it receives from the population at large." Capacity building must be used to develop public administrators that are responsive and accountable.

Artificial Intelligence:

The most popular and comprehensive advancement in the field of computer science was Artificial Intelligence, i.e. giving unnatural intelligence to the computer and to bring it up to the level of human being. The branch of computer science concerned with making computers behave like humans. The term was coined in 1956 by John McCarthy at the Massachusetts Institute of Technology. Artificial intelligence includes games playing, expert systems, natural language, neural network and robotics.

Artificial Neural network

An **artificial neural network (ANN)**, usually called **neural network (NN)**, is a mathematical model or computational model that is inspired by the structure and/or functional aspects of biological neural networks. The original inspiration for the term *Artificial Neural Network* came from examination of central nervous systems and their neurons, axons, dendrites, and synapses, which constitute the processing elements of biological neural networks investigated by neuroscience. In an artificial neural network, simple artificial nodes, variously called "neurons", "neurodes", "processing elements" (PEs) or "units", are connected together to form a network of nodes mimicking the biological neural networks — hence the term "artificial neural network".

A neural network consists of an interconnected group of artificial neurons, and it processes information using a connectionist approach to computation. In most cases an ANN is an adaptive system that changes its structure based on external or internal information that flows through the network during the learning phase. The utility of artificial neural network models lies in the fact that they can be used to infer a function from observations. This is particularly useful in applications where the complexity of the data or task makes the design of such a function by hand impractical.

ANN Application areas includes:

- system identification and control (vehicle control, process control),
- quantum chemistry, game-playing and decision making (backgammon, chess, poker),
- pattern recognition (radar systems, face identification, object recognition and more),
- sequence recognition (gesture, speech, handwritten text recognition),
- medical diagnosis,
- financial applications (automated trading systems),
- data mining (or knowledge discovery in databases, "KDD"),
- Visualization and e-mail spam filtering.

Let's take a set of example where we want to train the computer for car driving. We had attached a computer and try to capture all the measurements, observations and basic principles including hand, head and leg movements, eyes and ear involvement etc. which a driver is making for the drive. The sets of all records (maybe millions in nature and type) had been stored into the computer and then with all sorts of training the computer is possessing we can test the computer ability to drive the car.

With some minor changes or corrections it is easy for the computer to drive the car. Moreover we can use the similar data set for the new fellow to learn driving with the help of this trained computer. So in ANN we use the learning by examples principle or in other words it is the way to accomplish the job through training and testing procedure.

Organizational performance

Performance is a vital product of any effort irrespective of the nature. The student have to perform in the examination, the doctor have to perform during operation, a

professional have to perform in project. Every management needs one thing which is common is the level of performance always in the positive node and mode.

Performance is the key thing for all individual and also for the organization. lindividuals who pursue performance goals try to maintain positive judgements of their capabilities and avoid negative evaluations" (Vrugt et al., 2002).

Performance improvement is the concept of measuring the output of a particular process or procedure, then modifying the process or procedure to increase the output, increase efficiency, or increase the effectiveness of the process or procedure. The concept of performance improvement can be applied to either individual performance such as an athlete or organizational performance such as a racing team or a commercial enterprise.

Performance measurement is the process whereby an organization establishes the parameters within which programs, investments, and acquisitions are reaching the desired results. This process of measuring performance often requires the use of statistical evidence to determine progress toward specific defined organizational objectives.

Organizational performance comprises the actual output or results of an organization as measured against its intended outputs (or goals and objectives). Organisation creates measurement systems that specify particular actions they want execute- for branch employees to take a particular ways to execute what they want- branch to spend money. Then they want to measure to see whether the employees have in fact taken those actions. Need to measure input by individual into organization and process. Officials need to measure behavior of individuals then compare this performance with requirements to check who has and has not complied.

Human Values:

Value in general, important and enduring beliefs or ideas shared by the members of a culture about what is good or desirable and what is not. Values expert major influences on the behavior of an individual and serve as broad guidelines in all situations. Values evolved from circumstances with the external world and can change over time. Swami Yuktananda says that, "the values are the core of our

behaviour, the motive forces of our lives. As per Dr. R. K. Mukherji, "It is the concept of valuation that comprises the thread, tying together and beads of individual happiness, personality, adjustment and social and institutional adaptation in their togetherness." M.HATELEMBAS defines that "A value is a belief that something is good and desirable. It defines what is important, worthwhile and worth striving for."

Pt. Shriram sharma Acharya rightly quoted, that the values will be in form of **Jeevan mulya,** जीवन मूल्य (values for life- shanti, sukh, santosh and anand), **manviya mulya**, मानवीय मूल्य (basic human values- samajdari, immandari, Jimmedari, Bahaduri, Chammah, karuna, matriey), **stapitya mulya**, स्थापित मूल्य (established values – aadar, sneh, vatsalya, vishwas) or **Istitya mulya**, स्थित मूल्य (expressed values- nistha, udarta, sahajta, saumyata etc).

Statement of the problem

Analysis and design of ANN based model for the assessment of human capacity with respect to organizational performance. Literally it means we are going to analyse the various ANN based available models to assess the human capacity and based on our observations and analysis we are trying to design a new ANN model which will predict the human capacity and also about his organizational performance.

Objective:

1. To analyse the various computer based models for the assessment of human capacities.
2. To come up with an ANN model for the assessment of human capacity and also organizational performance.
3. To predict the human capacity on the basis of ANN model.

Why this research???

- Ever changing Technology, tools and things and to combat with it
- Individual differences in the ability to transform resources into valuable activities.

Capacity i.e. real opportunities which are based on personal and social circumstance varies from person to person. So measuring it on the scale of time and frame is not an easy job.

- How to chalk out which employee will be best suited for the institution / organization in the lack of standard test?
- To ensure that values and spirituality is an integral part of every human being personality and enrich his / her capability.

Review of Literature

- **Tim Hill et. Al. , 1993: ARTIFICIAL NEURAL NETWORK MODELS FOR FORECASTING AND DECISION MAKING :** In this paper the authors review the literature comparing artificial neural networks and statistical models, particularly in regression-based forecasting, time series forecasting, and decision making. Their intention is to give a balanced assessment of the potential of artificial neural networks for forecasting and decision making models. The authors survey the literature and summarize several studies they have performed. Overall, the empirical studies find artificial neural networks comparable to their statistical counterparts. They had noted the need for using the many mathematical proofs underlying artificial neural networks to determine the best conditions for using artificial neural networks in the forecasting and decision making.

- **Rogers, 1996: Measuring Organizational Performance in Strategic Human Resource Management: Looking Beyond the Lamppost:** A major challenge for Strategic Human Resource Management research in the next decade will be to establish a clear, coherent and consistent construct for organizational performance. This paper describes the variety of measures used in current empirical research linking human resource management and organizational performance. Implications for future research are discussed amidst the challenges of construct definition, divergent stakeholder criteria and the temporal dynamics of performance. A model for performance information markets to address these challenges is introduced. The model uses a multi-dimensional weighted performance

measurement system and a free information flow exchange mechanism for determining performance achievement criteria.

- **Daniel Wheeler, 2005: Building a Model for Sustainable Human Capacity Development in Mexico**, In this article Mr. Daniel is likely to build a sustainable model for human capacity development. Mexico and the US are in the throes of a migration problem which has created difficult economic and social issues for both countries. The US has often gained excellent workers but with a resultant depletion of many workers in Mexico. With a joint commitment, universities in both countries are in a unique position to find ways to help farmers and rural Mexican communities remain viable. Additionally, US universities can enhance their cultural capacity to work with migrant populations in various communities in the rural US.

- **(OECD, 2006) ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT: The Challenge of Capacity Development:** The OECD is a unique forum where the governments of 30 democracies work together to address the economic, social and environmental challenges of globalisation. In the words of Richard Manning, the chair, DCA, the recognition that capacity development is a fundamental component of development and aid effectiveness and a key element in achieving the Millennium Development Goals (MDGs), is what led the DAC Network on Governance (GOVNET) and the Learning Network on Capacity Development (LenCD) to their work on this publication. The publication reviews 40 years of development experience and concludes that donors and partner countries alike have tended to look at capacity development as mainly a technical process, or as a transfer of knowledge or institutions from North to South. It explains how donors have often failed to recognize the critical importance of country ownership and leadership, and how they underestimated the importance of the broader political context within which capacity development efforts take place.

- **SEYED JAMALALDIN SEYED HAKIM, 2006: DEVELOPMENT AND APPLICATIONS OF ARTIFICIAL NEURAL NETWORK FOR PREDICTION OF ULTIMATE BEARING CAPACITY OF SOIL AND COMPRESSIVE STRENGTH OF CONCRETE :** This research work focuses on development and application of artificial neural networks in some specific civil engineering problems such as prediction of ultimate bearing capacity of soil and compressive strength of concrete

after 28 days. One of the main objectives of this study was the development and application of an ANN for predicting of the ultimate bearing capacity of soil. Hence, a large training set of actual ultimate bearing capacity of soil cases was used to train the network. A neural network model was developed using 1660 data set of nine inputs including the width of foundation, friction angle in three layer, cohesion of three layers and depth of first and second layer are selected as inputs for predicting of ultimate bearing capacity in soil. The model contained a training data set of 1180 cases, a verification data set of 240 cases and a testing data set of 240 cases. The training was terminated when the average training error reached 0.002.

- **Arnoud de Meyer, 2007: Technology strategy and China's technology capacity building :** China has the potential to become a major source of innovation for the world. The scientific investment is in place and rapidly growing. But in order to reap the benefits of this investment its organisations will have to become better at managing innovation. One of the key elements of innovation management is the determination and implementation of a sound technology strategy. The purpose of this paper is to offer a framework and a detailed overview of what it entails to develop and implement a technology strategy.

The paper emphasizes the alignment of the strategy with the organisational competencies and the strategic context, as well as the capacity to manage risk. The attention is also drawn on the need to find better ways for intellectual property protection, leveraging the Chinese market to explore opportunities for innovative ideas and the need to create less hierarchical organisations, that enable creative thinking.

- **Dedong Liu et. Al., 2007: On the Development of Improved Artificial Neural Network Model and Its Application on Hydrological Forecasting :** As conventional multilayer backward-propagation network does not perform well on parameter estimation and convergence, several improved backward-propagation algorithms, such as VLBP, MOBP, CGBP and LMBP, were developed. In order to investigate simulation performance of each algorithm to construct the BP network model suitable for hydrological forecasting, five backward-propagation (BP) neural networks which are based on different algorithms are trained and compared among them. The results of experiments show that the Levenberg-Marquardt backpropagation (LMBP) neural network with a Levenberg-Marquardt based algorithm with enhanced optimization performance has better system identification

capacity and is suitable for network in which performance index is evaluated with mean- square error. Therefore, LMBP neural network are chosen for construction of hydrological forecasting model. The flood forecast results compare well with observed data. According to criterion, the model can be used as a favorable method and can be applied in other nonlinear system identifications.

- **Eleni et.al, 2007: Analysis of computer based model for assessment of human capability with respect to human spiritual behavior.** This study from Greece shows that Collaborative Interaction Analysis involves quantitative and qualitative techniques of coding and interpreting recorded group activities, mostly used by researchers of Computer Supported Collaborative Learning (CSCL). These techniques are usually tedious and necessitate specialized knowledge, so they are not suitable for everyday class practice. A hypothesis investigated in this paper is that such methods in a simplified version, if supported by adequate tools may be useful in design, implementation and evaluation of collaborative activities by teachers. The Synergo Interaction Analysis Tool is proposed for such use and an example of collaborative problem solving activity analysis by teachers during a collaborative activity is discussed as evidence of the effectiveness of this proposal.

- **Ole Therkildsen, 2007: STAFF MANAGEMENT AND ORGANISATIONAL PERFORMANCE IN TANZANIA AND UGANDA: PUBLIC SERVANT PERSPECTIVES :** Ole Therkildsen of Danish Institute for International Studies & Per Tidemand of Dege Consultants, Dar es Salaam had performed a detailed study on staff management and organizational performance in Tanzania a submitted a detailed report on it. This study - conducted at the beginning of 2006 in Tanzania and Uganda - is one of the few that to explore

  - Explores relations between organisational performance and HRM-practices
  - Provides a survey of the perceptions of public servants about such practices: what they think about their work-situation in terms of merit, motivation, management and certain norms and values
  - Includes all major organisational types of the service - central government, local government and executive agencies
  - Uses a comparative analytical perspective to seek to relate staff perceptions about HRM-issues to organisational performance

- Draws on institutional and contextual factors to understand the survey findings

The major finding of this study was Merit, motivation, management and context do influence organizational performance. Both monetary and non-monetary rewards influence staff motivation.

- **Andy Tamas, 2008 : Capacity Development Analysis Framework :** Andy Tamas is a Director, Tamas Consultant, Almonte, Canada. His paper is a brief summary of the many components of Capacity Development. The purpose of a development effort is to influence a system to alter its trajectory and achieve a desired effect, usually in terms of increasing performance in some relevant manner. The purpose of this paper is to offer a framework that actors can use to analyze a complex environment and select appropriate points and types of interventions to achieve their objectives, and/or to assess the results of an initiative. It can be used to provide clarity in designing or assessing international development projects as well as organizational or community development activities in any environment.

- **David Trejo et.al, 2008: Framework for Competency and Capability Assessment for Resource Allocation,** This paper proposes a decision process that engineering organizations can use to make human resource allocation decisions. This type of systematic approach will assist organizations in determining accurate predictions of their strengths and weaknesses and enable them to determine optimum resource allocations. In addition, identifying strategic core competencies followed by identification of organizational and individual capabilities necessary to fulfill the needs of these core competencies will optimize human resource allocations.

The proposed framework can complement and improve on available methods for identifying sourcing strategies with a goal of "rightsizing" organizations. Assessment of organizational competencies and capabilities can provide the necessary rationale behind human resource allocation and outsourcing decisions. Using the proposed framework presented in this paper would, therefore, assist companies in optimizing human resource allocation decisions.

- **Marivate, V.N, 2008: An intelligent Multi-Agent recommender system for human capacity building:** This paper presents a Multi-Agent approach

to the problem of recommending training courses to engineering professionals. The recommendation system is built as a proof of concept and limited to the electrical and mechanical engineering disciplines. Through user modelling and data collection from a survey, collaborative filtering recommendation is implemented using intelligent agents. The agents work together for recommending meaningful training courses and updating the course information. The system uses a users profile and keywords from courses to rank courses. A ranking accuracy for courses of 90% is achieved while flexibility is achieved using an agent that retrieves information autonomously using data mining techniques from websites. This manner of recommendation is scalable and adaptable. Further improvements can be made using clustering and recording user feedback.

- **Asaad Y. Shamseldin, 2010: Artificial neural network model for river flow forecasting in a developing country :** The present paper deals with exploring the use of Artificial Neural Networks (ANN) for forecasting the Blue Nile river flows in Sudan. Four ANN rainfall–runoff models based on the structure of the well-known multi-layer perceptron are developed. These models use the rainfall index as a common external input, with the rainfall index being a weighted sum of the recent and current rainfall. These models differ in terms of the additional external inputs being used by the model.

The additional inputs are basically the seasonal expectations of both the rainfall index and the observed discharge. The results show that the model, which uses both the seasonal expectation of the observed discharge and the rainfall index as additional inputs, has the best performance. The estimated discharges of this model are further updated using a non-linear Auto-Regressive Exogenous-input model (NARXM)-ANN river flow forecasting output-updating procedure. In this way, a real-time river flow forecasting model is developed. The results show that the forecast updating has significantly enhanced the quality of the discharge forecasts. The results also indicate that the ANN has considerable potential to be used for river flow forecasting in developing countries.

- **Anas Khan et. Al., 2011 : Developing international executives: the capacity-building approach :** the paper deals with the basic qualities of International executives which includes,
    - improving knowledge of self;

- ability to manage stress;
- adapting to the host country's culture and operating systems;
- host country's language, cross cultural communication and empathy;
- getting used to the host country's work and non-work environments;
- strategic perspective through self-efficacy and achievement-orientation; and
- broader leadership and skills for the overall management of the foreign unit.

The major finding of the paper is an international executive's/expatriate's development objectives must include developing one's managerial leadership skills, people and inter-personal skills (in small teams and large groups), cross-cultural communication skills (including a working knowledge of the local language), and a longer-term and strategic perspective that is backed by tenacity of purpose.

- **Government of Alberta, 2011: Community Capacity Development Framework for Child and Family Services Authorities (CFSAs):** In order to achieve the Goals of Ministry Community Capacity Development, the government of Alberta, child and youth affair worked on this framework and it is approved by the assembly co-chairs on February 2011. This document provides a framework for Alberta Children and Youth Services (Ministry) community capacity development that will assist Child and Family Services Authorities (CFSAs) in carrying out their community capacity development responsibility and in determining related community engagement strategies. Much of the work the Ministry is involved in requires significant community support for success. Community capacity is a key concept in our work. A common understanding of the concept and identification of the ways to achieve it are critical.

- **Li Mingchang et. Al. 2011: Carrying Capacity Assessment of Tianjin Binhai New District by Artificial Neural Network :** The authors worked out to assess the capacity of coastal region through ANN model. With the development of coastal region in Tianjin Binhai new district, environmental pollution, exhaustion of resources and ecological hazards are aggravated continuously. So for efficient utilization of resources and realization of sustainable development, study on the carrying capacity assessment of coastal region is the key means for guiding the

management. This paper presents a Data-Driven Model (DDM) to establish carrying capacity of coastal region assessment model solved by artificial neural network. (ANN). The evaluation results work well in Tianjin Binhai new district.

Variables:

The following variables are selected to study the problem.

Independent variables **Human capacity**

The three sub factors under human capacity will be :

1. personal and family background,
2. social and moral values and
3. Professional attitude.

Dependent Variables: **Organizational performance**

Organizational performance comprises the actual output or results of an organization as measured against its intended outputs. According to Richard et al. (2009) organizational performance encompasses three specific areas of firm outcomes:

(a) Financial performance (profits, return on assets, return on investment, etc.)

(b) Product market performance (sales, market share, etc.)

(c) Shareholder return (total shareholder return, economic value added, etc.).

In recent years, many organizations have attempted to manage organizational performance using the balanced scorecard methodology where performance is tracked and measured in multiple dimensions such as:

- financial performance (e.g. shareholder return)
- customer service
- social responsibility (e.g. corporate citizenship, community outreach)
- employee stewardship

Hypothesis

- There is no significant effect of personal and family background on the organizational performance among the top level management fellows.
- There is no significant effect of professional attitude on the organizational performance among the top level management fellows.
- There is no significant effect of professional attitude on the organizational performance of the teachers or middle management.
- There is no significant effect of social and moral values on the organizational performance of the teachers or middle management.
- There is no significant effect of personal and family background on the organizational performance of the clerical staff.
- There is no significant effect of social and moral values on the organizational performance of the clerical staff.
- There is no significant effect of personal and family background on the organizational performance among the fourth class employees.
- There is no significant effect of social and moral values on the organizational performance among the fourth class employees.

Methodology:

- Data collection through questionnaire for different groups like top level administration fellows, teachers or middle management fellows, clerical staff and the fourth class employees.
- Appropriate Database will be build on the basis of collected data.
- To emerge, develop and analysis of an ANN based model by training and testing for the assessment of human capacities on the basis of organizational performance.
- Computer will be trained to assess the human capacity through 200 data samples.
- Computer model will be tested and validated with 10% to 15% of data samples to predict the result and final assessment of human capacity of the

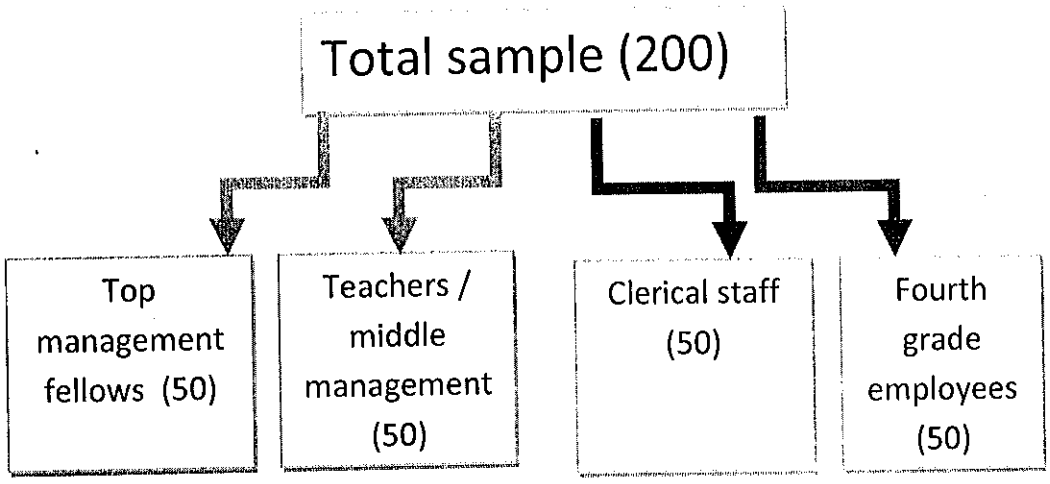
samples where as the rest of the data will be used for the training of the computer.

- Analysis of human capacity – through Artificial Neural Network Tools or / and statistical tools for different groups.

Sampling plan

Simple Random sampling will be adapted for the selection of the samples from the various segments of organizations. The major samples will be top management (50) fellows covering Senior Administrators, Directors, Registrars, Deputy Registrars, CEO's, VP's etc. The second selection of the group will be Teachers and middle managements (50) fellows like Head of Departments, Training Manager, HR Manager etc. The third group will be the clerical staff (around 50) covering the basic work of lesion between various managements –and the fourth sample of the fourth class employees (50) performing various routine jobs to sustain the organization. The samples will be selected purely on the lottery system.

Note: The data sample may vary as per the availability and suitability of various ANN models also.



Research Design:

- The design of the study will be Ex Post Facto research design

Tools:

- ANN tools as well as appropriate statistical tools (Regression model etc.) will be used.

ANN Analysis:

Appropriate ANN test like (Matlab- the language of technical computing) will be implied after the collection of the data.

Statistical Analysis:

Appropriate statistical test will be applied after the collection of data

Forecasting:

Analysis and assessment of human capacity with respect to organization performance.

Impact of research on the society (outcome of the research)

- The new model will serve the need of a computer based model for selection of employees in less amount of time.
- The Individual dependency in the Interviews / selection procedure will be reduced and the model is independent of the time scale proportion (it can be used lifelong and even after it.)
- ANN Model will be really helpful and reduces the selection time especially in the mass selection process.
- The society will have a new wave of thoughts that human capacity can be enhance by personal and family background, social and moral values as well as professional attitude.

References:

- Arnoud de Meyer, (2008) "Technology strategy and China's technology capacity building", Journal of Technology Management in China, Vol. 3 Iss: 2, pp.137 – 153, 2008
- Andy Tamas, 2008, capacity development and analysis frameworks, http://www.tamas.com/samples/source-docs/capdev.pdf as retrieved on 2011-12-12.
- Anne M. P. Canuto, Andrey, M. C. Campos, Joo Carlos Alchiere, Eliane C. M. de Moura, Araken M Santos, Emamuel B dos Santos, Rodrigo G Soares (2005), "A personality-based model of agents for representing individuals in working organizations," iat, pp.65-72, 2005 IEEE/WIC/ACM International Conference on Intelligent Agent Technology (IAT'05), 2005
- Anas Khan, Riad Khan, Mohammad Habibur Rahman, (2011) "Developing international executives: the capacity-building approach", Development and Learning in Organizations, Vol. 25 Iss: 2, pp.10 - 14
- Asaad Y. Shamseldin (2010), Journal of Hydroinformatics Vol 12 No 1 pp 22–35 © IWA Publishing 2010 doi:10.2166/hydro.2010.027, http://www.iwaponline.com/jh/012/jh0120022.htm as retrieved on 2011-12-12
- Daniel wheeler (2005), http://www.aiaee.org/carousels/117-2005-annual-conference/915-building-a-model-for-sustainable-human-capacity-development-in-mexico.html as retrieved on 2011-12-12
- David trejo, et. Al (2008): https://ceprofs.civil.tamu.edu/dtrejo/ about/pdf/18.pdf as retrieved on 2011-09-08
- Dedong Liu; Zhongbo Yu; Zhenchun Hao; Changjun Zhu; Qin Ju; Hohai Univ., Nanjing, 2007, http://ieeexplore.ieee.org/xpl/freeabs_all.jsp?arnumber=4344313 as retrieved on 2011-12-12.

- Eleni et. Al: http://doi.ieeecomputersociety.org/10.1109/ICALT.2006.109 as retrieved on 2011-09-08
- F. Frank and A. Smith, "The Community Development Handbook – A Tool to Build Community Capacity", Human Resources Development Canada (HRDC), 1999
- Government of Alberta, 2011: Community Capacity Development Framework for Child and Family Services Authorities (CFSAs): http://www.child.alberta.ca/home/documents/boarddevelopment/Community_Capacity_Development_Framework.pdf as retrieved on 2011-12-12
- Gilles Gautier, May Bassanino, Terrence Fernando, Sylvia Kubaski, "Solving the Human Problem: Investigation of a Collaboration Culture," i-esa, pp.261-267, 2009 International Conference on Interoperability for Enterprise Software and Applications China, 2009
- Goodman R.M., Speers M.A., McLeroy K., et al. 1998. Identifying and Defining the Dimensions of Community Capacity to Provide a Basis for Measurement. Health Education and Behavior. Vol. 25 (3): 258-278.
- Li Mingchang; Si Qi; Liang Shuxiu; Sun Zhaochen; Carrying Capacity Assessment of Tianjin Binhai New District by Artificial Neural Network, http://ieeexplore.ieee.org/xpl/freeabs_all.jsp?arnumber=5873460 as retrieved on 2011-12-12
- Marivate V., G. Ssali, T. Marwala, "An Intelligent Multiagent Recommender System for Human Capacity Building", Proceedings of the 14th IEEE Mediterranean Electrotechnical Conference, pp 909 - 915, 2008.
- Maxwell Elder Neil A, 1975, "Its service, not status that counts", Ensign, July pp. 7, 1975.
- OECD, 2006, http://www.oecd.org/dataoecd/4/36/36326495.pdf as retrieved on 12th December 2011.
- Ole Therkildsen, 2007, 'Staff management and organisational performance in Tanzania and Uganda: public servant perspectives.' Policy study for Danida. February 2007.
- Richard et al. (2009): Measuring Organizational Performance: Towards Methodological Best Practice. Journal of Management.

- Rogers, Edward W. and Wright, Patrick M., "Measuring Organizational Performance in Strategic Human Resource Management: Looking Beyond the Lamppost" (1998). *CAHRS Working Paper Series.* Paper 135. http://digitalcommons.ilr.cornell.edu/cahrswp/135
- Sharma Shriram (1989), "Jeevan Sadhana ke Swarnim sutra", pp 12, yugantar chetna press, Mathura
- Seyed Jamalaldin Seyed Hakim, 2011, International Journal of the Physical Sciences Vol. 6(5), pp. 975-981, 4 March, 2011, http://www.academicjournals.org/IJPS
- Tim Hill, Leorey Marquez, Marcus O'Connor, William Remus, 1993,http://machine-learning.martinsewell.com/ann/HMOR93.pdf as posted on September 30, 1998and retrieved on 12th December 2011.
- Tong Zehua, Han Chunhua, "Research on Application of RBF-NN in the Evaluation of Capability of Enterprise Knowledge Innovation," iciii, vol. 3, pp.615-620, 2010 3rd International Conference on Information Management, Innovation Management and Industrial Engineering, 2010
- Vrugt, A., Oort, F.J. and Zeeberg, C. (2002), "Goal orientation, perceived self-efficacy and study results amongst beginners and advanced students", Vol. 72, pp. 385-97,British Journal of Educational Psychology, 2002

Useful sites:

- http://en.wikipedia.org/wiki/Capacity_building
- http://www.apec.org.au/docs/koreapapers2/SVI-LC-Paper.pdf
- http://www.coastalwiki.org/coastalwiki/Human_Capacity_Building
- http://www.who.int/3by5/publications/briefs/capacity/en/index.html

Chapter planning:

Chapter 1:	Introduction of Human capacity, capacity building, the concept of organizational performance, Taxonomy of Artificial Neural Network.
Chapter 2:	Survey of Literature, a comparative study of the various work done so far in the field of assessment of human capacity through various models.
Chapter 3:	Analysis of Human capacity with respect to organizational performance through various computer based and scientific tools available so far.
Chapter 4:	Comparative analysis of Human capacity with respect to organizational performance in various case study groups and results and finding formation.
Chapter 5:	Conclusion, limitation of the work and Future scope.

*****